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Introduction

Lessons Learned: Worker Health and Safety Since September 11, 2001

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The attack on the World Trade Center on September 11, 2001 was the worst assault on the American homeland in the 225-year history of the United States. It was also the most massive acute environmental disaster that ever has befallen New York City. The destruction of the twin towers released thousands of tons of toxic materials into the air of lower Manhattan—asbestos, particulate matter, lead, soot, PCBs, and dioxins. Workers and children were the groups at greatest risk of exposure. The threat to human health was compounded in the months after September 11 by the bioterrorist attacks involving anthrax.

Responses to the attacks on the World Trade Center involved extraordinary heroism. They demonstrated the ability of the American health care system and of individual health workers to respond magnificently to an unprecedented crisis. But, the he response also underscored deep problems in the nation's public health infrastructure. These problems must be addressed and the necessary improvements to the system must be made, if mistakes are not to be repeated in future disasters. The following were the most important lessons learned for public health:

- *Inadequate preparation for disaster.* While no amount of preparation could have anticipated a disaster of the magnitude of the attacks on the World Trade Center, there was still abundant evidence of insufficient advance planning. In the field of public health, authorities had not established partnerships with agencies outside the health field such as police, fire, Coast Guard, and FBI.
- *Unclear lines of authority.* Major consequences of uncertain and conflicting authority were poor risk communication (see below), especially in the early days after the attacks and a disorganized approach to worker health and safety. Another consequence was a failure of agencies to agree who had responsibility to clean up dust-filled apartments in lower Manhattan until many months after the attacks.
- *Poor risk communication.* Neither workers nor the public were provided accurate information on health risks in the first weeks after the attacks. Evidence-based strategies and messages need to be developed in advance and spokespersons identified.
- *Protection of workers was seriously inadequate.* In the first hours to days after the attacks, workers rushed bravely into the Ground Zero site to rescue and recover victims with little thought to their own health and safety. That is entirely understandable, but there is no excuse for the passivity of the federal Occupational and Health Administration (OSHA) in the subsequent weeks and months when the agency failed to require workers to wear proper health and safety gear. The result will almost certainly be unnecessary disease and death. In the future, the law must be enforced.
- *Lack of chemical exposure standards for communities.* While there are occupational standards to protect industrial workers from toxin exposure and community air standards for the major pollutants, there exist no standards for chemical toxins in settled dust or on surfaces inside buildings. This lack of standards greatly complicated decisions on cleaning residential buildings and reopening schools.
- *Problems with protocols for building safety and evacuation.* The structural integrity of multi-story buildings must be increased and proper evacuation protocols must be in place.
- *Lack of baseline data and need for health-tracking*. A major gap in the nation's public health system, the lack of baseline health information, was made apparent in the aftermath of the attacks. A comprehensive disease tracking network is needed to truly understand the public

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health impacts of the September 11 disaster and any such future events. Public health laboratories are also an essential component of the preventive medicine infrastructure and are essential for accurate identification of emerging infections as well as chemical and biological warfare agents. The capacity of these laboratories needs to be strengthened.

We offer in the following sections, a series of Brief Reports which are based on presentations given at Lessons Learned: Worker Health and Safety Since September 11, 2001, the 23rd Annual Scientific Meeting of the Universities Occupational Safety and Health Education Resource Center (USHERC). A commentary by Paul Lioy and Michael Gochfeld provides a summary of recommended approaches to exposure problems. The authors are scientists, industrial hygienists, and representatives of the Fire Department of New York, the IUOE, OSHA and NYCOSH who were all involved in the process of rescue and recovery from Day 1.